

REMARKS

Claims 1-5, 7-14, and 16-18 are pending in the application. Claims 1, 14 and 18 are each amended. Claims 7, 8, 10, 11, and 16 have been previously presented. Applicant notes with appreciation that claims 4 and 5 are allowed by the Examiner.

Applicant amends claims 1, 14, and 18. Support for the amendments can be found in Figures 6(a) and 6(b) of the present Application, and on page 15, line 10 to page 17, line 20 of the present Application.

Claims 1, 2, 7-12, 14, and 17 are rejected under 35 USC 103(a) as being unpatentable over U.S. Patent No. 6,331,063 to Kamada et al. ("Kamada") in view of Japanese Patent Publication 2000323755 to Nozoe et al. ("Nozoe"). Applicant respectfully asserts that the rejection is overcome.

Claim 1 is directed to a light emitting diode (LED). In particular, claim 1 has been amended, in part, to recite:

"a unitary cup component having a slot space extending in a substantially vertical direction... and a first connection part comprising first and second leads which are partially received in said slot space of said cup component and protrude from said cup component in a direction determined by said slot space having a compensatory shape with respect to said first and second leads, wherein said first and second leads of said first connection part are connected to at least said first and second electrical conducting traces inside said slot space at the center sides of said first and second leads, respectively, ..."

Kamada is directed to an LED luminaire, wherein a plurality of LED chips are disposed three-dimensionally on a molded interconnection device (MID) substrate, by mounting three LED chips on the bottom face the respective dents provided lengthwise and crosswise in one surface of the MID substrate. (Abstract). In Kamada, by mounting at least two types of LED chips different in luminous color, different mixtures of light approaching "white" light can be realized. (Column 4, lines 51-58.)

Nozoe is directed to a pair of electrodes integrally formed on a mount cup of synthetic resin, and a semiconductor light-emitting element is so mounted as to be conductive to the pair of electrodes. (Abstract).

However, neither Kamada nor Nozoe, either singularly or in combination,

disclose, teach or suggest “a unitary cup component *having a slot space extending in a substantially vertical direction ... and a first connection part comprising first and second leads which are partially received in said slot space of said cup component and protrude from said cup component in a direction determined by said slot space having a compensatory shape with respect to said first and second leads*, wherein said first and second leads of said first connection part are connected to at least said first and second electrical conducting traces *inside said slot space at the center sides of said first and second leads,...*” (Emphasis added).

In Kamada, there is no unitary cup component having a slot space extending in a substantially vertical direction. In Nozoe, although there is a unitary mount cup, there is not a slot space or spaces extending in a substantially vertical direction that have electrical conducting traces at the center sides of first and second leads which are partially received in a slot space of the cup component.

The present invention of claim 1 has a number of advantages that are not found in the cited references. In claim 1, heat can be transferred through the electrical conducting traces 331 and 332, which are coupled to the leads 321 and 322. In the present Application, it states that:

“[the] advantage of the light-emitting diode based on the fourth desirable mode of embodiment is that superior heat-radiating properties are obtained. Specifically, the heat that is generated in the position of LED chip 340 during operation is readily transmitted to leads 321 and 322, by which means the heat can be radiated to the exterior by means of the leads. Consequently, even when the completed light-emitting diode has been used for a long time, its light-emitting properties do not readily deteriorate.”

It is respectfully requested for the reasons set forth above that the rejections under 35 U.S.C. 103(a) be withdrawn, that claim 1 be allowed.

Claims 2, 7-12, and 17 are dependent upon the claim 1. Therefore, by reason of this dependency, claims 2, 7-12, and 17 are also patentable over the cited combination of Kamada and Nozoe.

Claim 14 has been amended to include some analogous limitations as claim 1. Applicant states that claim 14 is patentable for at least some of the same reasons that claim 1 is allowable. Therefore, it is respectfully requested for the reasons set forth

above that the rejection under 35 U.S.C. 103(a) be withdrawn for claim 1, Applicant requests that claim 14 be allowed.

Claim 3 is rejected under 35 U.S.C. 103(a) as unpatentable over Kamada in view of Nozoe in further view of U.S. Patent No. 5,914,501 to Antle et al. ("Antle").

Applicant respectfully traverses the rejection.

Antle does not make up for the deficiencies of Kamada and Nozoe as Kamada and Nozoe relate to claim 1. Therefore, claim 1, and by virtue of its dependency, claim 3, is patentable over the cited combination of Kamada, Nozo and Antle.

It is respectfully requested for the reasons set forth above that the rejections under 35 U.S.C. 103(a) be withdrawn, and that claim 3 be allowed.

Claims 13 and 16 are rejected under 35 U.S.C. 103(a) as unpatentable over Kamada in view of Nozoe in further view of U.S. Patent No. 5,564,819 to Yamaguchi. ("Yamaguchi"). Applicant respectfully traverses the rejection.

Yamaguchi does not make up for the deficiencies of Kamada and Nozoe as Kamada and Nozoe relate to claim 1 and claim 14. Therefore, claims 1 and 14, and by virtue of their respective dependencies, claims 13 and 16, are patentable over the cited combination of Kamada, Nozoe and Yamaguchi.

It is respectfully requested for the reasons set forth above that the rejections under 35 U.S.C. 103(a) be withdrawn, and that claims 13 and 16 be allowed.

Claim 18 has been amended to include some analogous limitations as claim 1. Applicant states that claim 18 is patentable for at least some of the same reasons that claim 1 is allowable. Therefore, it is respectfully requested for the reasons set forth above that the rejection under 35 U.S.C. 103(a) be withdrawn, that claim 18 be allowed.

Claims 1, 6-11, and 14-18 are rejected under 35 USC 103(a) as being unpatentable over Japanese Patent Publication 06-090029 to Itou et al (Itou '29) in view of Japanese Patent Publication 07-007185 to Itou (Itou '85) in further view of Nozoe. Applicant respectfully asserts that the rejection is overcome.

Neither Itou '29 nor Itou '85, either singularly or in combination, disclose, teach or suggest "a unitary cup component *having a slot space extending in a substantially vertical direction* ... and a first connection part comprising first and second leads which *are partially received in said slot space of said cup component and protrude from said*

cup component *in a direction determined by said slot space having a compensatory shape with respect to said first and second leads*, wherein said first and second leads of said first connection part are connected to at least said first and second electrical conducting traces *inside said slot space at the center sides of said first and second leads,...*" (Emphasis added).

Itou '29 is directed to an assemblage of two base parts, 11, 12, which can be electrically connected to an outside semiconductor chip 13, wherein one electrode part is electrically connected to one upper part of the base part and the other electrode part is electrically connected to the other upper part of the base part. (Abstract).

Itou '85 is directed to a reflector having a bottom face with a recess to be fitted with an LED chip. Conductive elements, corresponding to the positive and negative electrodes of the LED chip serve as a reflecting plane and are applied onto the surface of the reflector. (Abstract).

In Itou '29, there is no unitary cup component having a slot space or spaces extending in a vertical direction. Instead, in Itou '29, there are two base parts 11 and 12, not a unitary cup component. In Itou '85, there is not a slot space or spaces extending in a vertical direction that has electrical conducting traces at the center sides of first and second leads. Instead, in Itou '85, the electrodes are bonded through a conductive adhesive to the reflector 2.

It is respectfully requested for the reasons set forth above that the rejections under 35 U.S.C. 103(a) be withdrawn, that claim 1 be allowed.

Claims 6-11 and 17 are dependent upon the claim 1. Therefore, by reason of this dependency, claims 6-11 and 17 are also patentable over the cited combination of Itou '29 and Itou '85.

As discussed above, claim 14 has been amended to include some analogous limitations as claim 1. Applicant states that claim 14 is patentable for at least some of the same reasons that claim 1 is allowable. Therefore, it is respectfully requested for the reasons set forth above that the rejection under 35 U.S.C. 103(a) be withdrawn, that claim 14 be allowed.

Claims 15 and 16 are dependent upon the claim 14. Therefore, by reason of this dependency, claims 15 and 16 are also patentable over the cited combination of Itou '29 and Itou '85.

Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as unpatentable over Itou '29 in view of Itou '85, and further view of Nozoe and in further view of Antle. Applicants respectfully traverse the rejection.

Nozoe and Antle do not make up for the deficiencies of Itou '29 and Itou '85 as as Nozoe and Antle relate to claim 1. Therefore, claim 1, and by virtue of its dependency, claims 2 and 3, are patentable over the cited combination of Kamada, Nozo and Antle.

It is respectfully requested for the reasons set forth above that the rejections under 35 U.S.C. 103(a) be withdrawn and that claims 2-3 be allowed.

Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as unpatentable over Itou '29 in view of Itou '85, and in further view of Yamaguchi. Applicants respectfully traverse the rejection.

Yamaguchi does not make up for the deficiencies of Itou '29 and Itou '85 as Itou '29 and Itou '85 relate to claim 1. Therefore, claim 1, and by virtue of its dependency, claims 12 and 13, are patentable over the cited combination of Itou '29, Itou '85, and Yamaguchi.

Therefore, it is respectfully requested for the reasons set forth above that the rejection under 35 U.S.C. 103(a) be withdrawn, that claim 14 be allowed.

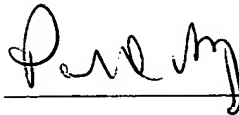
As discussed above, claim 18 has been amended to include some analogous limitations as claim 1. Applicant states that claim 18 is patentable for at least some of the same reasons that claim 1 is allowable. Therefore, it is respectfully requested for the reasons set forth above that the rejection under 35 U.S.C. 103(a) be withdrawn, that claim 18 be allowed.

Serial No.: 10/071,987
Art Unit: 2813

Accordingly, Applicant respectfully submits that the claims are in a condition for allowance.

Respectfully Submitted,

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